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The U.S. Patent And Trademark Office

Applicant: Jack William Maegli Conf.: 1612
Appl. No. 10/667,178 Group: Unknown
Filed: 09/18/2003 Examiner: Courson, Tania C
For: Equatorial Sundial with Simple Time and Date Interpretation

Commissioner for Patents
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Response to Office Action Regarding Application No. 10/667,178, Equatorial Sundial with Simple Time and Date Interpretation (Jack William Maegli)

Regarding Office Action (copy enclosed):

- 1-3. A species election was made per our referenced conversation.
4. Drawings were corrected for consistent numerical designation.
5. Figure 5 was withdrawn per the election for single disclosed species of sundial.
6. Drawings were corrected for consistent numerical designation.
7. Objections to Claims 1 & 2:
 - a) Corrected
 - b) Corrected
 - c) Corrected
 - d) Corrected
 - e) Claim 2 was eliminated and language combined with claim 1 to define species
 - f) Claim 2 was eliminated and language combined with claim 1 to define species

I reduced the patent to 5 claims. The fifth claim is an addition, to describe what I feel is an obvious variant of the species where the equatorial ring of the sundial is replaced with

a circular plane or disc, and is described in the original specification under "Alternative representation of the invention". It reads:

5. The embodiment of claim 1 where the equatorial ring is represented by a circular plane or disc.

If you object to the claim on grounds it is too generic, take it out.

8-9. In response to the invention being anticipated by Lewis (US 4,102,054):

a) To establish proper definition, allow me to refer to the Merriam Webster Dictionary entry for gnomon:

Main Entry: gno•mon

Etymology: Latin, from Greek *gnOmOn* interpreter, pointer on a sundial, from *gignOskein*

1 : an object that by the position or length of its shadow serves as an indicator especially of the hour of the day: as **a** : the pin of a sundial **b** : a column or shaft erected perpendicular to the horizon

In the Lewis patent the "cord or rod member" (Fig. 1, 26) is by definition the primary gnomon that casts the shadow on the time scale (Fig. 1, 36) and contains no indicia for determining date. Rather the Lewis date scale (Fig. 1, 24 and indicia 22) is located on the latitudinal ring member (Fig. 1, 18), which because it is not equidistant from the secondary gnomon (Fig. 1, 30) during the rising and setting altitudes of the sun during the day only indicates by the shadow cast the proper date when the solar altitude is equivalent to solar declination. This occurs in the middle of the solar day (about noon), or when the shadow from the primary gnomon also aligns with the scale. For this reason the Lewis invention only indicates the proper date when the intersecting shadow of the primary and secondary gnomon is cast onto the date scale, the primary gnomon in this case serving to indicate time of maximum sun altitude. If an observation is not made in the brief period the intersecting shadows pass through the date scale, a proper date is not ascertained. Lewis describes the date observation as needing to take place about "solar noon" (Column 5, lines 30-35).

The objective of my application No. 10/667,178 is to provide a date scale that is of utility regardless of solar altitude (or time of the day). Since the approximate top half of the equatorial ring (Fig. 1, 4, which serves as a secondary gnomon) and date scale (Fig. 1, 2 on the primary gnomon) have a consistent geometric relationship regarding solar declination regardless of solar altitude, the date scale is of full utility throughout the day.

b. This is very poor verbiage chosen on my part from claim 2, and is the election to use the equatorial ring as the secondary gnomon (in an election of species) which per above I do not feel would be anticipated by Lewis. Claim 2 was combined with claim 1 since it was redundant after the election of species per your request in the revision.

c. As mentioned in (a) above, the Lewis embodiment does not have a date scale on the primary gnomon. The date scale in the Lewis embodiment (Fig. 1, 24 and indicia 22) on the latitudinal ring (Fig. 1, 18) is in the form of an analemma curve, which because of the oval orbit of the earth around the sun allows a correction for real to solar time. Since the analemma curve approximates the figure 8 with intersection (depending on latitude) at a date approximately half way between the summer and winter solstice (near the equinox), the date scale goes from left to right during the spring equinox months (Fig. 3) and from right to left during the fall equinox months. Lewis suggests putting the dates 12/22-9/01 on the left side and 9/01- 12/22 on the right side to allow the best spacing of indicia (column 4, lines 27-32). Figure 3 shows a better representation where you can see that the spring equinox months cross from the left side to the right at the approximate date of 9/01.

I have no interest in my application No. 10/667,178 of doing an analemma correction for real to solar time. A requisite of the date scale on the primary gnomon of my application is that one side of the gnomon has a date scale for the spring equinox months in entirety, which would include the dates from solstice to solstice of 12/22 – 6/20 and the other side the fall equinox months of 6/21 – 12/21. Since the sun goes through redundant declination cycles from the solstice points, this provides the best separation of the date scale to maximize resolution and facilitate interpretation.

Right to left separation of the indicia based on the solstice dates of 6/21 and 12/22 (Maegli) is of significant contrast to separation based on analemmic intersection which is more proximal to the equinox dates of 9/23 and 3/21 (Lewis).

d. Yes, you are correct, this is not an unobvious part of the invention, but is meant to be a dependant claim for further refinement of the unobvious independent claim of the invention.

e. Yes, you are correct, as in d above this is not meant to be an independent claim.

10. Prior art

Hughes, Jr. (US 6,604,290 B1): Not mentioned in specification, no date function

Wurch et. al. (US 4,237,611): Mentioned in specification

Ashton (US 4,135,357): Added to specification

Gundlach (US 3,815,249): Not mentioned in specification, no date function

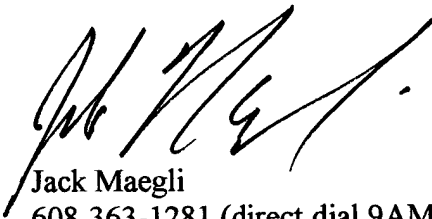
Sunblad (US 2,754,593): Not mentioned in specification, no date function

Mead (US 2,192,750): Not mentioned in specification, no date function

Balch (US 1,570,029): Not mentioned in specification, no date function

Dick (US 978,859): Not mentioned in specification, no date function

Please feel free to call to discuss. I am a research director, and as such spend a lot of time in meetings and the lab, but am pretty good about returning phone calls within a few hours if I'm not at my desk. I have enclosed a revised copy of the application.

A handwritten signature in black ink, appearing to read 'Jack Maegli', with a stylized, cursive script.

Jack Maegli

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